

IN THE CLAIMS:

Please cancel claims 22-27 and add new claims 34-45.

1-15. (Canceled)

16. (Previously Presented) A D/A conversion circuit for supplying a gradation voltage corresponding to n-bit digital signal (n is a natural number that is equal to or larger than 2), comprising:

a first D/A conversion circuit comprising:

$(2^x + 1)$ gradation voltage lines;

a first switching circuit having 2^x first switching elements wherein each one of 2^x first switching elements is electrically connected to each one of the $(2^x + 1)$ gradation voltage lines;

a first output line electrically connected to the first switching circuit;

a second switching circuit having 2^x second switching elements wherein each one of 2^x second switching elements electrically connected to each one of $(2^x + 1)$ gradation voltage lines; and

a second output line electrically connected to the second switching circuit;

a second D/A conversion circuit comprising:

2^y resistor elements connected in series between the first output line and the second output line;

a third switching circuit having 2^y third switching elements coupled to each other via the 2^y resistor elements;

a third output line electrically connected to the third switching circuit; and

a forth switching element electrically connected to the second and third output lines,

wherein x and y are natural numbers which satisfy $x + y = n$.

17. (Previously Presented) A circuit according to claim 16, wherein the D/A conversion circuit is manufactured on an insulating substrate by using a plurality of thin film transistor.

18. (Previously Presented) A circuit according to claim 16, wherein the D/A conversion circuit is utilized in any one of a video camera, a digital camera, a goggle-type display, a car navigation system, a personal computer, a DVD player, and a portable information terminal.

19. (Previously Presented) A D/A conversion circuit for supplying a gradation voltage corresponding to n -bit digital signal (n is a natural number that is equal to or larger than 2), comprising:

a first D/A conversion circuit comprising:

$(2^x + 1)$ gradation voltage lines;

a first switching circuit having the 2^x first switching elements wherein each one of 2^x first switching elements is electrically connected to each one of 1st line to (2^x) th line of the $(2^x + 1)$ gradation voltage lines;

a first output line electrically connected to the first switching circuit;

a second switching circuit having the 2^x second switching elements

wherein each one of 2^x second switching elements electrically connected to each one of 2nd line to $(2^x + 1)$ th line of the $(2^x + 1)$ gradation voltage lines; and

a second output line electrically connected to the second switching circuit;

a second D/A conversion circuit comprising:

2^y resistor elements connected in series between the first output line and the second output line;

a third switching circuit having 2^y third switching elements coupled to each other via the 2^y resistor elements;

a third output line electrically connected to the third switching circuit; and

a forth switching element electrically connected to the second and third output lines,

wherein x and y are natural numbers which satisfy $x + y = n$.

20. (Previously Presented) A circuit according to claim 19, wherein the D/A conversion circuit is manufactured on an insulating substrate by using a plurality of thin film transistor.

21. (Previously Presented) A circuit according to claim 19, wherein the D/A conversion circuit is utilized in any one of a video camera, a digital camera, a goggle-type display, a car navigation system, a personal computer, a DVD player, and a portable information terminal.

22-27. (Canceled)

28. (Previously Presented) A D/A conversion circuit for supplying a gradation voltage

corresponding to n-bit digital signal (n is a natural number that is equal to or larger than 2), comprising:

a first D/A conversion circuit comprising:

$(2^x + 1)$ gradation voltage lines;

a first switching circuit having 2^x first switching elements wherein each one of 2^x first switching elements is electrically connected to each one of the $(2^x + 1)$ gradation voltage lines;

a first output line electrically connected to the first switching circuit;

a second switching circuit having 2^x second switching elements wherein each one of 2^x second switching elements electrically connected to each one of $(2^x + 1)$ gradation voltage lines; and

a second output line electrically connected to the second switching circuit;

a second D/A conversion circuit comprising:

2^y resistor elements connected in series between the first output line and the second output line;

a third switching circuit having 2^y third switching elements coupled to each other via the 2^y resistor elements;

a third output line electrically connected to the third switching circuit;

a forth switching element electrically connected to the second and third output lines, and

a buffer circuit electrically connected to the third output line,

wherein x and y are natural numbers which satisfy $x + y = n$.

29. (Previously Presented) A circuit according to claim 28, wherein the D/A conversion circuit is manufactured on an insulating substrate by using a plurality of thin film transistor.

30. (Previously Presented) A circuit according to claim 28, wherein the D/A conversion circuit is utilized in any one of a video camera, a digital camera, a goggle-type display, a car navigation system, a personal computer, a DVD player, and a portable information terminal.

31. (Previously Presented) A D/A conversion circuit for supplying a gradation voltage corresponding to n -bit digital signal (n is a natural number that is equal to or larger than 2), comprising:

a first D/A conversion circuit comprising:

$(2^x + 1)$ gradation voltage lines;

a first switching circuit having the 2^x first switching elements wherein each one of 2^x first switching elements is electrically connected to each one of 1st line to (2^x) th line of the $(2^x + 1)$ gradation voltage lines;

a first output line electrically connected to the first switching circuit;

a second switching circuit having the 2^x second switching elements wherein each one of 2^x second switching elements electrically connected to each one of 2nd line to $(2^x + 1)$ th line of the $(2^x + 1)$ gradation voltage lines; and

a second output line electrically connected to the second switching

circuit;

a second D/A conversion circuit comprising:

2^y resistor elements connected in series between the first output line and the second output line;

a third switching circuit having 2^y third switching elements coupled to each other via the 2^y resistor elements;

a third output line electrically connected to the third switching circuit;

a forth switching element electrically connected to the second and third output lines, and

a buffer circuit electrically connected to the third output line,

wherein x and y are natural numbers which satisfy $x + y = n$.

32. (Previously Presented) A circuit according to claim 28, wherein the D/A conversion circuit is manufactured on an insulating substrate by using a plurality of thin film transistor.

33. (Previously Presented) A circuit according to claim 28, wherein the D/A conversion circuit is utilized in any one of a video camera, a digital camera, a goggle-type display, a car navigation system, a personal computer, a DVD player, and a portable information terminal.

34. (New) A display device, comprising:

a plurality of TFTs arranged in matrix;

a gate signal line driver circuit driving the plurality of TFTs;

a source signal line driver circuit driving the plurality of TFTs, the source signal

line driver circuit comprising:

a first D/A conversion circuit comprising:

$(2^x + 1)$ gradation voltage lines;

a first switching circuit having 2^x first switching elements wherein each one of 2^x first switching elements is electrically connected to each one of the $(2^x + 1)$ gradation voltage lines;

a first output line electrically connected to the first switching circuit;

a second switching circuit having 2^x second switching elements wherein each one of 2^x second switching elements electrically connected to each one of $(2^x + 1)$ gradation voltage lines; and

a second output line electrically connected to the second switching circuit;

a second D/A conversion circuit comprising:

2^y resistor elements connected in series between the first output line and the second output line;

a third switching circuit having 2^y third switching elements coupled to each other via the 2^y resistor elements;

a third output line electrically connected to the third switching circuit; and

a forth switching element electrically connected to the second and third output lines,

wherein x and y are natural numbers which satisfy $x + y = n$ (n is a natural

number that is equal to or larger than 2).

35. (New) A display device according to claim 34, wherein the display device is manufactured on an insulating substrate.

36. (New) A display device according to claim 16, wherein the display device is utilized in any one of a video camera, a digital camera, a goggle-type display, a car navigation system, a personal computer, a DVD player, and a portable information terminal.

37. (New) A display device, comprising:

- a plurality of TFTs arranged in matrix;

- a gate signal line driver circuit driving the plurality of TFTs;

- a source signal line driver circuit driving the plurality of TFTs, the source signal line driver circuit comprising:

 - a first D/A conversion circuit comprising:

 - $(2^x + 1)$ gradation voltage lines;

 - a first switching circuit having the 2^x first switching elements wherein each one of 2^x first switching elements is electrically connected to each one of 1st line to (2^x) th line of the $(2^x + 1)$ gradation voltage lines;

 - a first output line electrically connected to the first switching circuit;

 - a second switching circuit having the 2^x second switching elements wherein each one of 2^x second switching elements electrically connected to each one of 2nd line to $(2^x + 1)$ th line of the $(2^x + 1)$ gradation voltage lines; and

 - a second output line electrically connected to the second switching

circuit;

a second D/A conversion circuit comprising:

2^y resistor elements connected in series between the first output line and the second output line;

a third switching circuit having 2^y third switching elements coupled to each other via the 2^y resistor elements;

a third output line electrically connected to the third switching circuit; and

a forth switching element electrically connected to the second and third output lines,

wherein x and y are natural numbers which satisfy $x + y = n$ (n is a natural number that is equal to or larger than 2).

38. (New) A display device according to claim 37, wherein the display device is manufactured on an insulating substrate.

39. (New) A display device according to claim 37, wherein the display device is utilized in any one of a video camera, a digital camera, a goggle-type display, a car navigation system, a personal computer, a DVD player, and a portable information terminal.

40. (New) A display device, comprising:

a plurality of TFTs arranged in matrix;

a gate signal line driver circuit driving the plurality of TFTs;

a source signal line driver circuit driving the plurality of TFTs, the source signal line driver circuit comprising:

a first D/A conversion circuit comprising:

$(2^x + 1)$ gradation voltage lines;

a first switching circuit having 2^x first switching elements wherein each one of 2^x first switching elements is electrically connected to each one of the $(2^x + 1)$ gradation voltage lines;

a first output line electrically connected to the first switching circuit;

a second switching circuit having 2^x second switching elements wherein each one of 2^x second switching elements electrically connected to each one of $(2^x + 1)$ gradation voltage lines; and

a second output line electrically connected to the second switching circuit;

a second D/A conversion circuit comprising:

2^y resistor elements connected in series between the first output line and the second output line;

a third switching circuit having 2^y third switching elements coupled to each other via the 2^y resistor elements;

a third output line electrically connected to the third switching circuit;

a forth switching element electrically connected to the second and third output lines, and

a buffer circuit electrically connected to the third output line,

wherein x and y are natural numbers which satisfy $x + y = n$ (n is a natural

number that is equal to or larger than 2).

41. (New) A display device according to claim 40, wherein the display device is manufactured on an insulating substrate.

42. (New) A display device according to claim 40, wherein the display device is utilized in any one of a video camera, a digital camera, a goggle-type display, a car navigation system, a personal computer, a DVD player, and a portable information terminal.

43. (New) A display device, comprising:

- a plurality of TFTs arranged in matrix;

- a gate signal line driver circuit driving the plurality of TFTs;

- a source signal line driver circuit driving the plurality of TFTs, the source signal line driver circuit comprising:

 - a first D/A conversion circuit comprising:

 - $(2^x + 1)$ gradation voltage lines;

 - a first switching circuit having the 2^x first switching elements wherein each one of 2^x first switching elements is electrically connected to each one of 1st line to (2^x) th line of the $(2^x + 1)$ gradation voltage lines;

 - a first output line electrically connected to the first switching circuit;

 - a second switching circuit having the 2^x second switching elements wherein each one of 2^x second switching elements electrically connected to each one of 2nd line to $(2^x + 1)$ th line of the $(2^x + 1)$ gradation voltage lines; and

 - a second output line electrically connected to the second switching

circuit;

a second D/A conversion circuit comprising:

2^y resistor elements connected in series between the first output line and the second output line;

a third switching circuit having 2^y third switching elements coupled to each other via the 2^y resistor elements;

a third output line electrically connected to the third switching circuit;

a fourth switching element electrically connected to the second and third output lines, and

a buffer circuit electrically connected to the third output line,

wherein x and y are natural numbers which satisfy $x + y = n$ (n is a natural number that is equal to or larger than 2).

44. (New) A display device according to claim 43, wherein the display device is manufactured on an insulating substrate.

45. (New) A display device according to claim 43, wherein the display device is utilized in any one of a video camera, a digital camera, a goggle-type display, a car navigation system, a personal computer, a DVD player, and a portable information terminal.